Smooth and Unrestricted Roads and Bridges

Tangible Result Driver – Kevin Keith, Chief Engineer

MoDOT's customers have said they want smooth roads. Smoother roads mean less wear on vehicles, safer travel and greater opportunity for economic development. MoDOT will delight its customers by providing smooth and unrestricted roads and bridges. MoDOT recognizes that road projects built and maintained to a high standard of smoothness will be more efficient. MoDOT must provide customers with smooth roads – because everyone riding on a road can feel whether it is smooth or not!

Smooth and Unrestricted Roads and Bridges

Percent of major highways that are in good condition

Result Driver: Kevin Keith, Chief Engineer
Measurement Driver: Jay Bledsoe, Transportation System Analysis Engineer

Purpose of the Measure:
This measure tracks the condition of Missouri's major highway road surfaces. The public has indicated the condition of Missouri's existing roadway system should be one of the state's highest priorities. MoDOT places a high priority on improving the condition of highways in the state system.

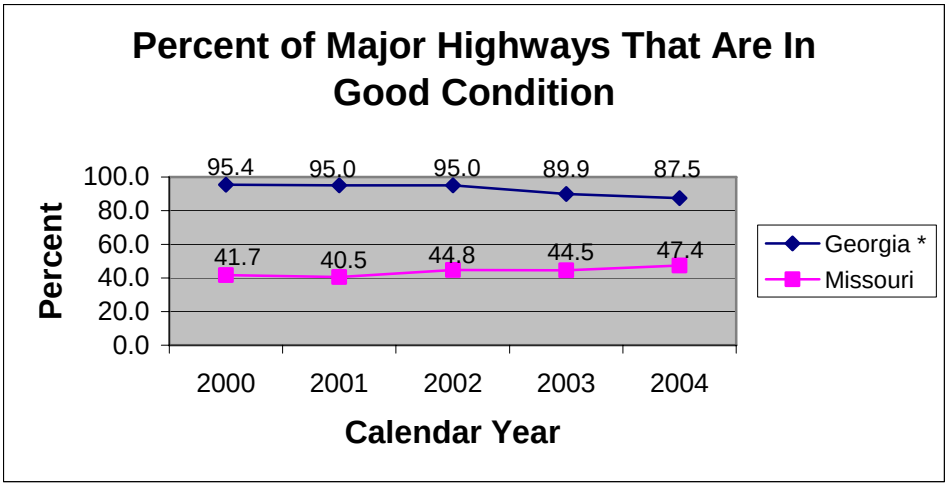
Measurement and Data Collection:
The major highway system is defined as all routes functionally classified as principal arterials. By definition, the principal arterial system provides for statewide or interstate movement of traffic. Examples include the Interstate system or most US routes such as US 63, US 54 or US 36.

In urban areas, principal arterials carry traffic entering or leaving the urban area and serve movement of vehicles between central business districts and suburban residential areas. Examples include Business 50 (Missouri Blvd.) in Jefferson City, MO 740 (Stadium Blvd.) in Columbia and Route D (Page Ave.) in St. Louis.

The major roads in Missouri total approximately 5,400 centerline miles. Good condition is defined using a combination of criteria. On high-speed routes (speed limits greater than 50 mph) the International Roughness Index (IRI) is used. For lower-speed routes (mostly urban areas) where smoothness is less critical, a Present Serviceability Rating (PSR) is used. While smoothness is a factor in PSR, physical condition is also a factor.

Direct comparison to other states is difficult because of differences in measurement methodologies. However, a general order-of-magnitude comparison is possible given certain assumptions. For example, there are five states that report mileage for major highways within 10 percent of that maintained by MoDOT. Of these five, Georgia, with 5,708 miles, currently has the highest percentage of these highways classified in good condition based on smoothness only. The Missouri definition of good uses smoothness as one factor, but it also includes other condition factors such as physical distress to determine quality. While the comparison is not exact, it does indicate the level of performance possible on a system of Missouri's size.

Improvement Status:
In the past two years, there has been a slight improvement in pavement condition. Currently, 47.4 percent of the major highways are in good condition. More than $430 million per year is dedicated to taking care of the existing highway system. An additional $359 million available from Amendment 3 (approved by Missouri voters in Nov. 2004) will be added to this sum over the next three years as part of MoDOT's Smooth Road Initiative. In the next few years, the number of major highway miles of pavement in good condition will substantially increase due to additional funding.



* Source data for Georgia is "Highway Statistics 2003" published by FHWA. It is based only on pavement smoothness (IRI) submitted as part of the Highway Performance Monitoring System.

Smooth and Unrestricted Roads and Bridges

Percent of minor highways that are in good condition

Result Driver: Kevin Keith, Chief Engineer
Measurement Driver: Jay Bledsoe, Transportation System Analysis Engineer

Purpose of the Measure:
This measure tracks the condition of Missouri's minor highway road surfaces. The public has indicated the condition of the existing state roadway system should be one of Missouri's highest priorities. MoDOT places a high priority on improving the condition of highways in the state system.

Measurement and Data Collection:
The minor highway system consists of all routes functionally classified as minor arterials or collectors. These routes mainly serve local transportation needs and include highways commonly referred to as lettered routes, such as Route A, Route C and Route DD. The public sometimes refers to these routes as farm-to-market roads. The minor roads in Missouri total approximately 27,000 centerline miles.

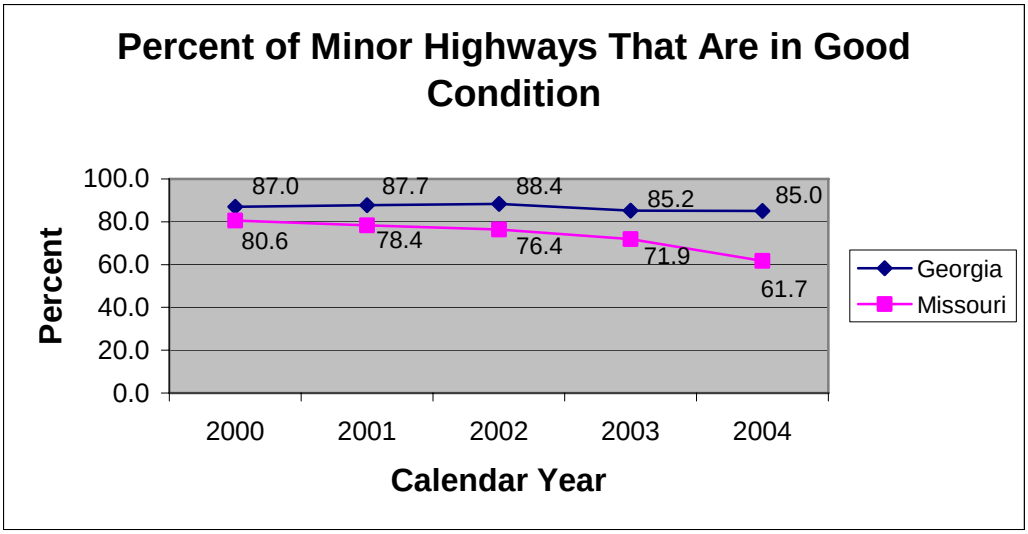
Good condition is defined using a combination of criteria. Where available, on high-speed routes (speed limits greater than 50 mph) the International Roughness Index (IRI) is used. For lower speed routes where smoothness is less critical, a Present Serviceability Rating (PRS) is used. While smoothness is a factor in PSR, physical condition is also a factor.

Direct comparison to other states is difficult because of differences in measurement methodologies. However, a general order-of-magnitude comparison is possible given certain assumptions. For example, there are six states that report mileage for minor highways within 10 percent of that maintained by MoDOT. Of these six, Georgia, with 24,315 miles, currently has the highest percentage of these highways classified in good condition. The ratings reported by states as part of the Highway Performance Monitoring System for roads classified as minor more closely relate to Missouri's rating system.

Improvement Status:
Pavement conditions on minor highways have shown a slight decrease in the last five years currently to 61.7 percent. However, the condition of pavement on minor highways already exceeds that of the major highway system. More attention and extra money from the passage of Amendment 3 (approved by Missouri voters in Nov. 2004) will be focused on improving the major highways. Funding for minor highways should result in conditions at or near current levels.

Federal Highway Administration allows conditions on collectors to be reported on either IRI or PSR. PSR includes an assessment of physical distress similar to Missouri's definition. The Missouri definition of good uses smoothness as one factor, but it also includes other condition factors such as physical distress to determine quality. While the comparison is not exact, it does indicate the level of performance possible on a system of Missouri's size.

2004 results are based on approximately 11,000 miles rated using a combination of automated methods and MoDOT district manual ratings. Prior years are based only on manual district ratings. A process to transition to centralized rating is being developed. The 2005 data expected for the Jan. 2006 Tracker will be composed of more that 50 percent ratings by Transportation Planning (TP) personnel. TP staff using methods comparable with those used on major highways will conduct all ratings during calendar year 2006.



Desired Trend:

* Source data for Georgia is "Highway Statistics 2003" published by the Federal Highway Administration. Data is based on a combination of pavement smoothness – IRI or PSR – as submitted as part of the Highway Performance Monitoring System.

Smooth and Unrestricted Roads and Bridges

Percent of deficient bridges on major highways

Result Driver: Kevin Keith, Chief Engineer
Measurement Driver: Jay Bledsoe, Transportation System Analysis Engineer

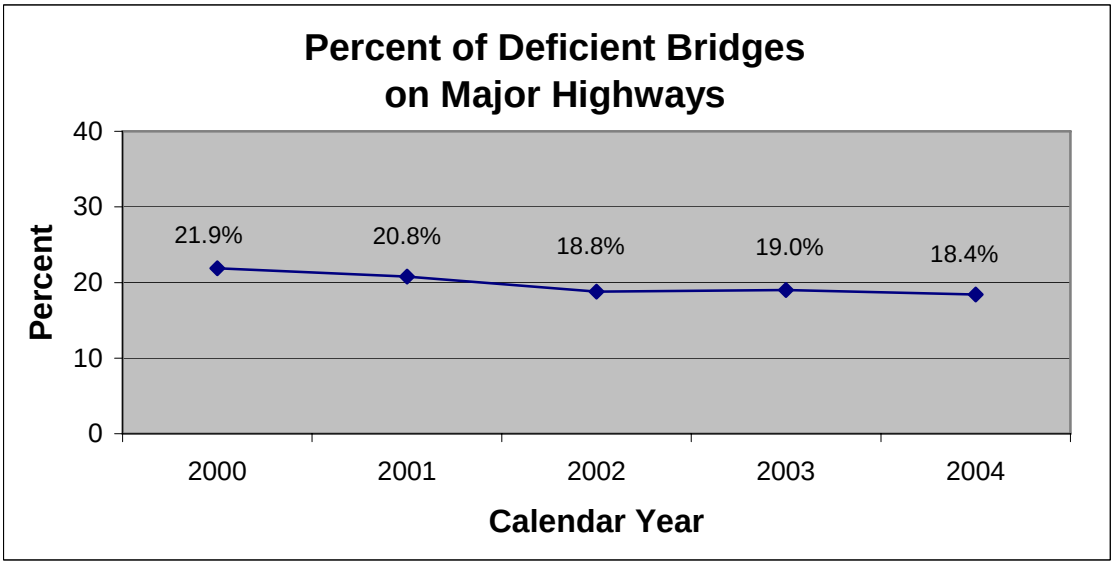
Purpose of the Measure:
This measure tracks progress toward improving the condition of Missouri's bridges on major highways. The public has indicated the condition of Missouri's existing roadway system should be one of the state's highest priorities. MoDOT places a high priority on increasing the quality of bridges on the state system.

Measurement and Data Collection:
The major highway system is defined as all routes functionally classified as principal arterials. By definition, the principal arterial system provides for statewide or interstate movement of traffic. Examples include the Interstate system or most US routes such as US 63, US 54 or US 36.

In urban areas, principal arterials carry traffic entering or leaving the urban area and serve movement of vehicles between central business districts and suburban residential areas. Examples include Business 50 (Missouri Blvd.) in Jefferson City, MO 740 (Stadium Blvd.) in Columbia and Route D (Page Ave.) in St. Louis.

A bridge is considered deficient if it is either structurally deficient (SD) or functionally obsolete (FO) as defined using Federal Highway Administration criteria. A SD bridge is in poor condition or has insufficient load capacity when compared to modern design standards. A FO bridge has poor roadway alignment or has clearance or width restrictions that no longer meet the usual criteria for the system it serves. MoDOT staff inspects all state-owned bridges annually. There are currently 3,282 bridges on major highways.

Improvement Status:
Bridge conditions on major highways have shown a moderate improvement. The percent of deficient bridges is down by 18.4 percent over the last five years as a result of increasing funds directed to taking care of the existing highway system. A minimum of $10 million per year has been dedicated to bridge preventive maintenance activities to slow the number of bridges falling into the deficient category.



Desired Trend: ↘

Smooth and Unrestricted Roads and Bridges

Percent of deficient bridges on minor highways

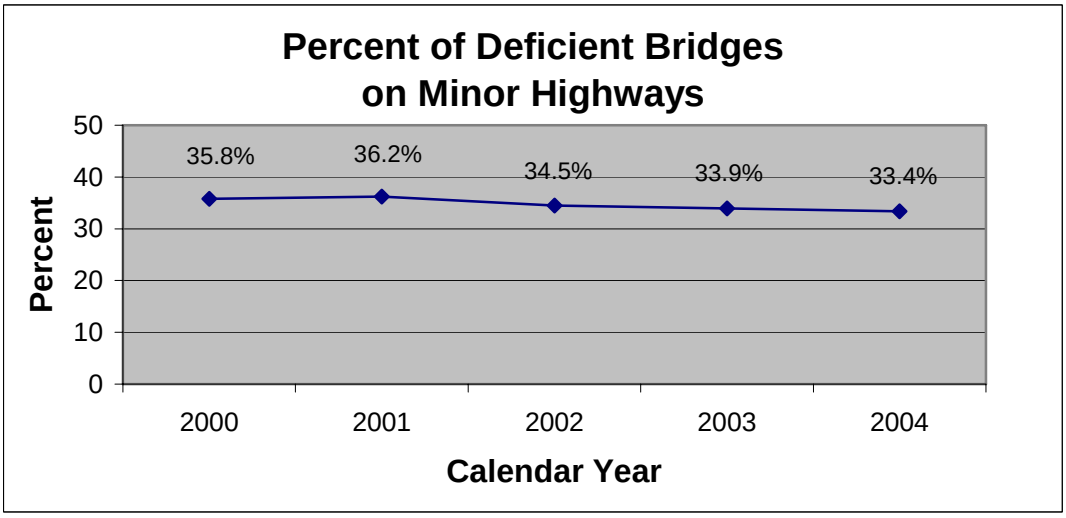
Result Driver: Kevin Keith, Chief Engineer
Measurement Driver: Jay Bledsoe, Transportation System Analysis Engineer

Purpose of the Measure:
This measure tracks progress toward improving the condition of Missouri's minor highway bridges. The public has indicated the condition of Missouri's existing roadway system should be one of the state's highest priorities. MoDOT places a high priority on increasing the quality of bridges on the state system.

Measurement and Data Collection:
The minor highway system consists of all routes functionally classified as minor arterials or collectors. These routes serve more local transportation needs and include highways commonly referred to as lettered routes, such as Route A, Route C and Route DD. The public sometimes refers to these routes as farm-to-market roads.

A bridge is considered deficient if it is either structurally deficient (SD) or functionally obsolete (FO) as defined using Federal Highway Administration criteria. A SD bridge is in poor condition or has insufficient load capacity when compared to modern design standards. A FO bridge has poor roadway alignment, or has clearance or width restrictions that no longer meet the usual criteria for the system it serves. MoDOT staff inspects all state-owned bridges annually. There are currently 6,901 bridges on minor highways.

Improvement Status:
Bridge conditions on minor highways have shown a moderate improvement. The percent of deficient bridges is down by 33.4 percent over the last five years as a result of increasing funds directed to taking care of the existing highway system. A minimum of $10 million per year has been dedicated to bridge preventive maintenance activities to slow the number of structures falling into the deficient category.



Desired Trend: ↘

Smooth and Unrestricted Roads and Bridges

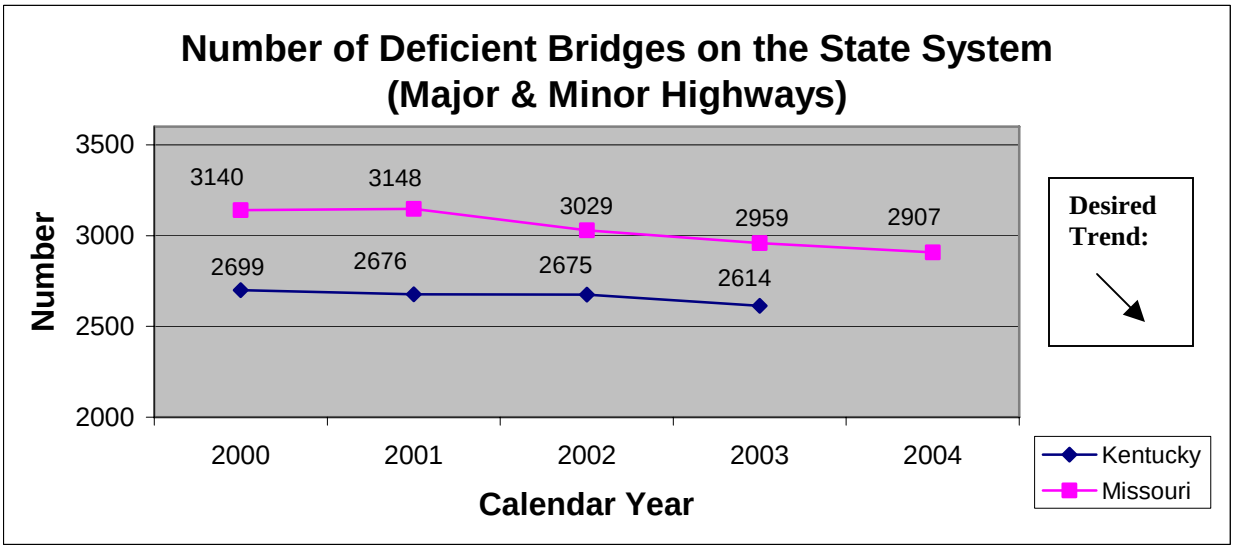
Number of deficient bridges on the state system (major & minor highways)

Result Driver: Kevin Keith, Chief Engineer
Measurement Driver: Jay Bledsoe, Transportation System Analysis Engineer

Purpose of the Measure:
This measure tracks progress toward improving the condition of Missouri's bridges. The public has indicated the condition of Missouri's existing roadway system should be one of the state's highest priorities. MoDOT places a high priority on increasing the quality of bridges on the state system.

Measurement and Data Collection:
A bridge is considered deficient if it is either structurally deficient (SD) or functionally obsolete (FO) as defined using Federal Highway Administration criteria. A SD bridge is in poor condition or has insufficient load capacity when compared to modern design standards. A FO bridge has poor roadway alignment, or has clearance or width restrictions that no longer meet the usual criteria for the system it serves. MoDOT staff inspects all state-owned bridges annually. There are currently a total of 10,183 bridges on the state highway system.

Improvement Status:
Bridge conditions on Missouri highways have shown a moderate improvement in the last five years as a result of increasing funds directed to taking care of the existing highway system. Currently, 2,907 bridges are considered deficient on the state highway system. A minimum of $10 million per year has recently been dedicated to preventive maintenance activities on bridges to slow the number of bridges falling into the deficient category. The number of deficient bridges has been reduced by about 50 each year since 2000.



* Source for Kentucky, "Better Bridges" November 2004 for data collected in calendar year 2003. The 2004 data for Kentucky not available at this time.

Smooth and Unrestricted Roads and Bridges

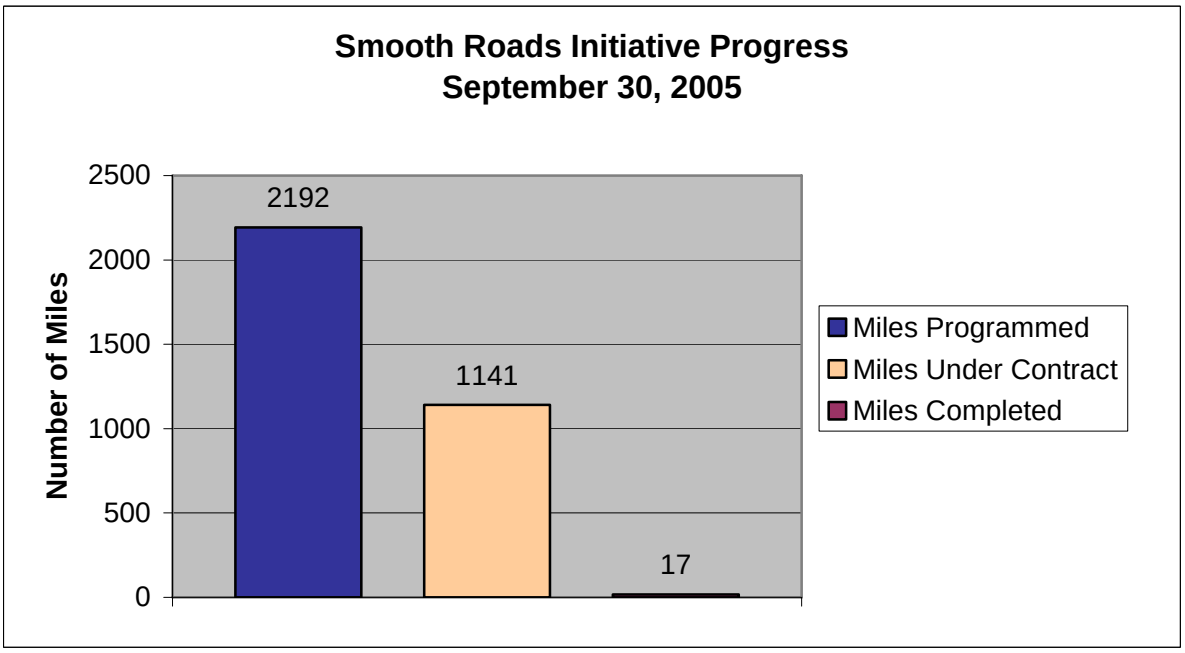
Number of miles completed through the Smooth Roads Initiative

Result Driver: Kevin Keith, Chief Engineer
Measurement Driver: Machelle Watkins, Transportation Planning Director

Purpose of the Measure:
This measure will determine how many centerline miles of roadway have been improved as a result of the Amendment 3 Smooth Roads Initiative.

Measurement and Data Collection:
The first set of Smooth Roads Initiative projects were awarded in February 2005. Data collection on this measure began on May 1, 2005 with the first reporting in the July 2005 Tracker. Data will be collected and reported on a statewide basis. All of the Smooth Roads Initiative projects should be completed within three years.

Improvement Status:
Statewide, by September 30, 2005 2 SRI projects have been completed totaling 17 miles and 52% of all statewide SRI project miles have been awarded.



Desired Objective:

2192 miles